



Digital Literacy and Online Safety: The Role of Library and Services in the Digital Age

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Abstract

The digital revolution has reshaped the global landscape, making digital literacy and online safety indispensable for effective participation in today's information-driven society. Libraries, traditionally known for print resources and information services, have evolved into vital digital hubs that promote inclusive access to digital tools and knowledge. This review paper examines the transformative role libraries play in fostering digital literacy and safeguarding online behavior, particularly in developing contexts such as Nigeria. It explores how libraries offer training programs, provide access to technology, and support community education on cybersecurity awareness. Despite their efforts, libraries face significant obstacles-including inadequate funding, outdated infrastructure, and limited staff capacity-which hinder their ability to fully meet the demands of digital inclusion and online safety. Using a narrative review methodology, this paper synthesizes insights from global and Nigerian sources to highlight best practices, emerging challenges, and the strategic importance of libraries in the digital era. It concludes with practical solutions and recommendations to strengthen library systems as key enablers of equitable digital development and safe online engagement for all.

Keywords: Digital literacy, online safety, digital inclusion, ICT training, cyber awareness,

Introduction

The 21st century has witnessed an unprecedented digital transformation driven by rapid developments in information and communication technologies (ICTs). These changes have reshaped how individuals' access, share, and utilise information across education, commerce, healthcare, and governance (UNESCO, 2022). Consequently, digital literacy defined as the ability to locate, evaluate, use, create, and communicate information through digital technologies that has become a fundamental competency for active participation in today's knowledge-based society (IFLA, 2019; Ribble, 2011).

At the same time, the increased reliance on digital platforms has introduced complex risks, including cyberbullying, misinformation, identity theft, and data breaches, making online safety a critical dimension of digital engagement (Ogunmodede and Adepoju, 2023). Libraries, historically known as custodians of print resources, have evolved into community-based digital hubs that facilitate access to technology, promote digital literacy, and educate users about safe online practices (Aiyegbusi and Oladokun, 2022).

In developing countries such as Nigeria, libraries face persistent challenges—including inadequate funding, outdated infrastructure, and a shortage of digitally skilled staff—which limit their ability to fully meet the demands of digital inclusion and



online safety education (World Bank, 2021; Olanrewaju and Ojo, 2021). Addressing these challenges is vital for reducing the digital divide and fostering equitable access to digital opportunities.

This paper adopts a narrative review approach to synthesise existing literature on digital literacy and online safety, with a specific focus on the role of libraries in Nigeria. It integrates evidence from global and local contexts to:

- (1) explore the conceptual foundations of digital literacy and online safety,
- (2) examine the evolving role of libraries as digital literacy and safety enablers,
- (3) identify challenges that hinder library-based digital programs, and
- (4) present context-driven recommendations to strengthen library capacity for advancing digital inclusion and online safety.

By consolidating these insights, the paper contributes to a clearer understanding of how libraries can be leveraged as strategic actors in Nigeria's digital development agenda.

Methodology

This study adopts a narrative review approach to synthesise existing literature on digital literacy, online safety, and the role of libraries, with particular reference to the Nigerian context. Unlike systematic reviews, which employ rigid inclusion and exclusion criteria, narrative reviews allow for a broader and more flexible exploration of relevant themes, integrating diverse sources of evidence to develop a comprehensive understanding of the topic (Greenhalgh, Thorne, and Malterud, 2018).

The review focused on literature published primarily between 2018 and 2024, as this period reflects the most recent developments in digital literacy, online safety, and library transformation in the digital age. Foundational works (e.g., Gilster, 1997; Ribble, 2011) were also included to provide a conceptual grounding where

appropriate. Sources were identified through searches in academic databases such as Google Scholar, Scopus, and Library Philosophy and Practice, as well as policy documents from reputable organisations, including IFLA, UNESCO, NITDA, and the World Bank. Grey literature such as government reports, program evaluations (e.g., DLIP), and professional association publications were also reviewed to capture practical and context-specific insights relevant to Nigeria.

Concept of Digital Literacy

Digital literacy refers to the ability to locate, understand, evaluate, create, and communicate information using digital technologies. It encompasses more than basic computer skills and includes critical thinking, information ethics, and the ability to participate effectively in digital environments (UNESCO, 2022). Gilster (1997) emphasised that digital literacy involves not just technical proficiency but understanding digital information and its context.

In Nigeria, digital literacy is a critical tool for empowerment, especially for marginalised populations. It enables access to e-government services, digital education platforms, and online economic opportunities (NITDA, 2021). Libraries play a central role in providing equitable access to these skills, helping to bridge socio-economic gaps in digital competence.

Concept of Online Safety

Online safety, or cyber hygiene, involves the knowledge and practices required to protect personal data, privacy, and mental well-being in digital spaces. This includes strategies to mitigate risks such as cyberbullying, phishing, identity theft, and exposure to harmful content (Ogunmodede and Adepoju, 2023). Libraries have integrated cyber-safety education into digital literacy programs, providing workshops and campaigns to raise community awareness (IFLA, 2019).



Libraries as Digital Hubs

Libraries have evolved from being primarily repositories of books to serving as dynamic digital learning centres. They now provide internet access, digital resources, training programs, and support for safe online behaviour (Adebayo and Yusuf, 2020). In Nigeria, libraries in urban and rural settings often serve as the only access points for ICT tools and digital training for disadvantaged groups.

Libraries and Digital Literacy

Libraries promote digital literacy by offering structured training on essential skills such as online navigation, productivity software, information evaluation, and safe internet practices. Advanced programs may also include coding and data literacy (IFLA, 2019). For example, public libraries in the UK and Canada collaborate with governments to provide digital literacy programs for all age groups, a model that Nigerian libraries can adapt.

Access to Technology

Libraries provide free internet access, computers, printers, and access to digital learning resources. For many Nigerians, particularly those in rural communities, libraries are the only public venues that offer such services (Adebayo and Yusuf, 2020). Initiatives like the Global Libraries project by the Gates Foundation highlight the importance of libraries as community digital access points.

Case Study: Nigeria

In Nigeria, while libraries are acknowledged as vital to digital development, challenges such as inadequate infrastructure, insufficient funding, and limited staff training hinder their potential (Olanrewaju and Ojo, 2021). Programs like the Digital Literacy and Inclusion Programme (DLIP) are beginning to address these challenges through partnerships aimed at increasing access and training.

Libraries and Online Safety

Libraries also play a crucial role in online safety education. They provide cybersecurity workshops, awareness campaigns, and implement policies on data protection and responsible Internet use (NITDA, 2023). For example, the Kano State Library Board has piloted projects teaching students safe and responsible Internet usage.

Challenges Faced by Libraries

Key challenges include:

Inadequate funding and resource constraints: Inadequate funding and resource constraints hinder educational and library development, leading to poor infrastructure, limited technology adoption, and reduced service quality. Studies (2020–2025) highlight that while increased investment is vital, effective allocation and governance are equally necessary to ensure resources translate into improved learning outcomes and equitable access (UNESCO, 2023; World Bank, 2023; Nwoke et al., 2024).

Limited training for library staff in ICT and cybersecurity: Library staff often lack sufficient ICT and cybersecurity training due to resource limitations and weak institutional support. In Nigeria, minimal ongoing training, poor program updates, and management's lack of commitment hinder readiness against threats (Akor et al., 2024; Lagos-state study, 2024)

Poor infrastructure: Poor infrastructure, especially in rural areas, severely limits access to quality education and library services. Challenges include inadequate classrooms, unreliable electricity, poor internet connectivity, and lack of modern facilities. These gaps widen the urban–rural divide and restrict digital inclusion (UNESCO, 2023; Nwoke, Oyiga & Cochrane, 2024; TETFund, 2025).

Lack of strong partnerships with ICT stakeholders: Library staff often lack sufficient ICT and cybersecurity training due to resource limitations and weak institutional support. In Nigeria, minimal ongoing training, poor program



updates, and management's lack of commitment hinder readiness against threats (Akor et al., 2024; Lagos-state study, 2024)

Solutions to the Challenges

Public-Private Partnerships (PPPs): This offers a viable strategy to boost funding and resources for education and libraries. By leveraging private sector investment and expertise, PPPs can enhance infrastructure, expand ICT access, and improve service delivery, especially where government resources are limited (World Bank, 2023; TETFund, 2025; UNESCO, 2023).

Continuous Professional Development (CPD): It is essential for librarians and educators to keep pace with evolving ICT, digital literacy, and service delivery demands. Regular training improves staff competence, adaptability, and innovation, thereby enhancing user satisfaction and institutional effectiveness (Akor et al., 2024; UNESCO, 2023; Elejene, 2025).

Programs for library staff to improve ICT and online safety expertise: These are vital for strengthening digital service delivery and protecting against cyber threats. Such initiatives enhance staff skills, build user trust, and ensure secure, inclusive access to electronic resources (Akor et al., 2024; Lagos-state study, 2024; UNESCO, 2023).

Infrastructure upgrades for improving education and library services: Infrastructure upgrades are crucial for improving education and library services particularly in ICT access and digital learning. Enhanced facilities, reliable power supply, and stronger Internet connectivity bridge service gaps, foster digital inclusion and support sustainable innovation (UNESCO, 2023 and TETFund, 2025). Embracing solar energy helps mitigate persistent power challenges in libraries and schools, ensuring reliable access to ICT services. Collaboration with stakeholders such as NITDA, UNESCO, and NGOs enhances resource sharing, technical support, and capacity building, thereby promoting sustainable

development and digital inclusion (UNESCO, 2023; World Bank, 2023; TETFund, 2025).

Conclusion:

In the digital age, libraries have transitioned from their traditional role as repositories of print materials to vital community-based platforms for digital learning and online safety education. Through the provision of internet access, digital tools, and structured training programs, libraries play an essential role in bridging the digital divide and equipping users with the skills necessary to engage safely and productively in the digital environment. This narrative review underscores that while libraries in Nigeria possess significant potential to drive digital literacy and online safety initiatives, their effectiveness is constrained by funding limitations, infrastructural deficiencies, and a lack of specialised training for library staff. Emerging programs such as the Digital Literacy and Inclusion Programme (DLIP) and the initiatives of the National Information Technology Development Agency (NITDA) demonstrate promising steps toward addressing these gaps, but sustained progress requires systemic support and long-term investment.

By implementing the proposed recommendations, libraries can become powerful catalysts for digital inclusion and online safety, ensuring that individuals—regardless of socio-economic background—can participate meaningfully and securely in the digital age.

Recommendations

To strengthen the capacity of libraries in Nigeria to promote digital literacy and online safety, the following recommendations are proposed:

1. Integrate Libraries into National Digital Policy Frameworks (High Priority). Libraries should be explicitly incorporated into national strategies such as the National Digital Economy Policy and Strategy (NDEPS). This integration should include:
 - i. Dedicated funding lines for library ICT infrastructure upgrades.



- ii. Policy mandates for digital literacy and online safety programs delivered through libraries.
- iii. Clear accountability mechanisms to track library-based contributions to national digital inclusion goals.
2. Strengthen Library Staff Capacity through Continuous Professional Development (High Priority). Library staff need specialised training to deliver effective digital literacy and online safety education. This can be achieved by:
 - i. Institutionalising Continuous Professional Development (CPD) programs in ICT and cybersecurity.
 - ii. Collaborating with organisations such as NITDA, IFLA, and UNESCO for standardised training modules.
 - iii. Updating Library and Information Science (LIS) curricula in Nigerian universities to include digital skills and cyber safety education.
3. Expand Community-Centric Digital Literacy and Online Safety Programs (Medium Priority). Libraries should design and implement tailored programs for different demographics, including:
 - i. Youth and students (coding clubs, safe browsing workshops).
 - ii. Women and marginalised groups (digital skills for economic empowerment).
 - iii. Elderly populations (basic ICT training and online fraud awareness). Programs should use locally relevant content and delivery methods, including school outreach initiatives, community forums, and social media campaigns.
4. Improve Library ICT Infrastructure and Connectivity (Medium Priority).
 - i. Adequate infrastructure is essential for libraries to fulfil their digital roles.
 - ii. Deploying solar power solutions in rural libraries to mitigate unreliable electricity.
 - iii. Providing high-speed internet access, modern computers, and digital learning tools.
- iv. Establishing regional digital resource centres to support underserved areas.
5. Foster Multi-Stakeholder Partnerships (Medium Priority). Libraries should collaborate with technology companies, NGOs, and international donors to:
 - i. Access funding and technical support for ICT infrastructure.
 - ii. Share best practices for digital literacy and online safety training.
 - iii. Participate in global library innovation programs such as those supported by the Bill and Melinda Gates Foundation's Global Libraries initiative.
6. Establish Monitoring and Evaluation Mechanisms (Supporting Priority). To ensure accountability and continuous improvement:
 - i. Develop measurable indicators (e.g., number of users trained, increase in digital literacy levels, reduction in reported online safety incidents).
 - ii. Conduct periodic program evaluations to assess effectiveness.
 - iii. Publish annual reports to inform policymakers and stakeholders about progress and impact.

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